

bitter matter, fixed oil, colouring matter, (which was yellow and probably starch, and which could not be directly extracted on account of its desiccation,) earthy and alkaline salts, woody hairs and wax, which latter appears to preserve the perisperm from humidity*. MM. Pelletier and Caventou have since discovered two vegetable alkalies, Strychnine and Brucine, in it.

It is known that where the Urari has not produced death, it has been followed by torpor and paralytic fits; and where it has taken effect, the victim dies under convulsions. It appears, when brought in contact with the blood, to have a direct power over the spinal cord. The same effect is produced by the nux vomica when taken internally. M. Orfila observes, "A person swallowed in the morning a scruple of nux vomica in powder, and drank afterwards a few glasses of cold water in order to diminish the bitterness occasioned by this substance. Half an hour after he appeared to be drunk; his limbs, especially his knees, were stiff and tense: his walk was staggering, and he was afraid of falling. He took some food and the symptoms disappeared. The administration of nux vomica and of the root of gentian to a woman affected with ague was followed by convulsions, cold and stupor, and almost every part of the body was torpid." (Scutter's Dissert. †)

It is remarkable that the poison proves innocent when taken internally, and is even recommended as a remedy in gastric disorders. While, during my late expedition in the interior of Guiana, I was suffering under all the horrors of a tertian ague, and our quinine had fallen short, I took frequently the Urari in doses of about as much as I could get on the point of the knife. After having taken it I felt generally a slight head-ache, but it did not remove the fever; and fearing there might be an excoriation of the tongue or throat, or bleeding of the gums, without being aware of it, my companions induced me to desist from the dangerous experiment. The Indian when he purchases the poison tastes it, in order to judge of its genuineness. It is well ascertained, also, that animals shot with the Urari are more savoury when prepared for food, and the meat is quite innocent. Generally, the game which we received from the Indians was killed with the poisoned arrow, and we never hesitated to eat of it. Dissection of those who have died of the nux vomica shows no organic lesions, which is likewise the case where death has been produced by the Urari coming in contact with the blood. The first is proved by numerous experiments of M. Orfila; the

* Medical Botany, etc., London, 1831, vol. ii. part lii.

† *Ib.* part lii.

latter by those of Mr. Waterton in England, and several physicians in Demerara. The juice of the *Cassada* becomes innocent by being boiled, that of the *Urari* becomes poisonous after it has been concentrated by the action of fire: should the poisonous principle of the *Jatropha manihot* be entirely volatile? The *Cassaripe* is the concentrated juice of the *Jatropha manihot*, and is used as fish-sauce and for many culinary purposes, while in its pure state it proves poisonous to animal life; what then can cause the difference? I am not aware whether experiments have been made by inoculating animals with the juice of the *nux vomica* in its pure state, and likewise after having been concentrated.

Sir Walter Raleigh says, in his second Guiana voyage, "There was nothing whereof I was more curious than to find out the true remedies of these poisoned arrows. . . . And it is more strange to know that in all this time there was never Spaniard, either by gift or torment, that could attain to a true knowledge of the cure, although they have martyred and put to invented torture I know not how many of them." Raleigh recommends garlic as an antidote where the wound has been inflicted with an arrow of the ordinary poison, and advises them to abstain from drink, "for if they take any liquor into their body, as they shall be marvellously provoked thereunto by drought, I say, if they drink before the wound be dressed, or soon upon it, there is no way with them but present death." Irai, a Carib chieftain of the Rupununi, and the last descendant in direct line of the Cacique Mahanarawa, so far confirms Raleigh's account, that the thirst which ensues after a wound has been inflicted is intolerable. He pretended that the infusion from the root of a species of *Wallaba* (*Dimorpha*, W.), mixed with sugar, or the juice of sugar-cane, was an antidote. There is not much dependence to be placed on this remedy. While in Curasawake in 1838, we secured several Kings of the Vultures (*Sarcorhamphus Papa*) alive. A female which we had for several weeks succeeded in escaping out of the place where she was kept, and flew to a neighbouring tree. I was loath to lose her, and resolved to shoot her with weakened *Urari* poison. It took effect, and she fell from the tree. We immediately applied juice of the sugar-cane, but without avail; and after having lingered for half an hour, she died under convulsions. Humboldt observes, that an application of salt internally and to the wound would be found of importance; and Mr. Waterton informs us, that an ass which was poisoned by *Wourali* recovered by inflating his lungs with a pair of bellows*. In the 'Annals of Philosophy,' vol. xv. p. 389, we

* Waterton's 'Wanderings,' p. 83.